Claims

1. A magnetic recording medium comprising a substrate and a magnetic layer with an hcp (101-2) plane being parallel to the surface of the substrate, wherein an easy magnetization axis in the magnetic layer is tilted away from the (101-2) plane.

2. The magnetic recording medium of claim 1, wherein the (101-2) plane is a Co(101-2) plane.

3. The magnetic recording medium of claim 1, wherein the easy magnetization axis is tilted about 45° away from the (101-2) plane.

4. The magnetic recording medium of claim 2, wherein the easy magnetization axis is tilted about 45° away from the surface of the substrate.

5. The magnetic recording medium of claim 1, further comprising an underlayer comprising an underlayer material having a lattice unit that substantially matches the hcp lattice of the magnetic material of the magnetic layer.

6. The magnetic recording medium of claim 5, wherein a mismatch between the lattice unit of the underlayer material and that of the hcp lattice of the magnetic material of the magnetic layer is less than 10%.

7. The magnetic recording medium of claim 5, wherein the underlayer is directly in contact with the magnetic layer.

8. The magnetic recording medium of claim 5, wherein the magnetic material is Co or a Co-containing alloy.

9. The magnetic recording medium of claim 5, wherein the underlayer material has a fcc lattice.

10. The magnetic recording medium of claim 9, wherein the underlayer material is selected from the group consisting of Ni, Al, Rh, Pd, Ag, Ir, Pt, Au, Pb, Th, Ce and Yb.

11. A method of manufacturing a magnetic recording medium comprising obtaining a substrate and depositing a magnetic layer on the substrate, the magnetic layer comprising a magnetic material with an hcp (101-2) plane being parallel to a

surface of the substrate, wherein an easy magnetization axis in the magnetic layer is tilted away from the (101-2) plane.

12. The method of claim 11, wherein the (101-2) plane is a Co(101-2) plane.

13. The method of claim 11, wherein the easy magnetization axis is tilted about 45° away from the (101-2) plane.

14. The method of claim 12, wherein the easy magnetization axis is tilted about 45° away from the surface of the substrate.

15. The method of claim 11, further comprising an underlayer comprising an underlayer material having a lattice unit that substantially matches the hcp lattice of the magnetic material of the magnetic layer.

16. The method of claim 15, wherein a mismatch between the lattice unit of the underlayer material and that of the hcp lattice of the magnetic material of the magnetic layer is less than 10%.

17. The method of claim 15, wherein the underlayer is directly in contact with the magnetic layer.

18. The method of claim 15, wherein the magnetic material is Co or a Co-containing alloy.

19. The method of claim 15, wherein the underlayer material has a fcc lattice.

20. The method of claim 19, wherein the underlayer material is selected from the group consisting of Ni, Al, Rh, Pd, Ag, Ir, Pt, Au, Pb, Th, Ce and Yb.

21. A magnetic recording medium, comprising a substrate and means for producing an easy magnetization axis tilted away from a plane of the substrate.